NOTES ON EXPEDITION TO GAZALAND, ALONG THE LIMPOPO RIVER, 29th June to 12th August, 1916.

By Dr. H. G. Breyer.

Members of the expedition: H. G. Breyer, leader; F. O. Noome, taxidermist; G. van Dam and J. W. F. Breyer, assistants.

The party left Lourenco Marques at about 8 o'clock by train bound for Moamba, on the main line to Pretoria; from there a branch line has been constructed, which terminates at Xinavane, where there are extensive sugar plantations. Our destination was Magude Siding, about 12 miles from the terminus. We arrived there at 1.30. The siding is situated in a sandy wilderness.

The village of Magude is built on the left bank of the Komati and is at a distance of 4½ miles from the siding. Our luggage was transported in large punts to the other side of the river. The left bank is very high and steep, but a good road and a stair had been built, so that it was not difficult to reach the plateau where the Administrator lived. The village consists of perhaps forty houses, besides the offices and "rondavels" of the police. One has a magnificent view from this high bank of the Komati and the vast forests beyond.

Our object was to get a good number of skeletons and skins of larger animals, especially the skeleton of an elephant, and both skins and skeletons of elands. Besides these, it was our intention to collect all kinds of animals and plants, and to take photos of the interesting spots, trees, and so forth. The Administrator informed us that elephants were not far off, near Chiburro, and that at Macarre large herds of blue wildebeest, zebra, and impala were to be found. The elephants, however, were reported to have small tusks and to be of small size, consequently we decided to go further inland to Mazammbo, where we might get huge specimens, and where elands were to be found.

We left Magude on 1st July with two scotch carts, fifteen carriers, and a native guide. In the evening we crossed the Manzimhlope, which was practically dry and did not contain pure white water such as the name would appear to indicate. The country is nearly as flat as Holland, and one can imagine that in summer time, in the rainy season, large tracts of land are transformed into lakes. Near the junction of the Manzimhlope and Komati is a big lake, lago Chuale, whilst the Komati divides there into two branches and forms a fairly large island, Marianna. Needless to say, this country has an extremely bad reputation for fever.

We passed Macarre in the afternoon and found the information of the Administrator quite correct. Several herds of wildebeest could be seen in the distance, as well as ostriches, impalas, and "gompauws" (*Otis kori*).

The next evening we reached Guija on the Limpopo, 47 miles from Magude.

The river itself was about 100 yards broad, while from bank to bank the distance is certainly 300 yards. Everywhere we saw vestiges of the floods of the previous summer, and miles before we reached the river we noticed dry reeds and grasses in the branches of the trees. We were informed that the natives had been obliged to climb into the highest trees and had been gradually rescued by boats. On the highest banks more to the north we found long rows of temporary buildings made by the natives, where they had lived till the water subsided. Their temporary inconvenience from the inundation was amply compensated, however, by the increased fertilization of the soil, and this year we saw the natives planting and harvesting at the same time, and mealies (maize) in every stage of growth.

The Guija we reached is not indicated on the map. Its old name is Canicado, whilst Guija marked on the map is about 20 miles more upstream. It is the seat of an Administrator, and the chief town of the extremely large province of Guija, its area being larger than that of Magude, Bilene Chibuto together. We had to cross the river as we wanted to follow a footpath along the left bank.

On the 4th of July we left Guija with a number of natives and two new scotch carts, each with four oxen, provided by the Administrator. We soon found that game was not at all plentiful; in fact, we did not see any during the first days, except birds. Near the road, on both sides, we saw several most beautiful pools, full of gorgeous waterlilies in flower, and *Utricularias*, whilst delicate *Limnanthemums* adorned the banks. Large numbers of ibises, herons, divers, jacanas, gallinules, geese, and ducks were feeding there, and without these it would not have been possible to feed the natives sufficiently. Sometimes large flocks of pelicans gathered on the banks or were seen swimming majestically amongst the Nymphaeas, and these especially were selected for culinary purposes, not so much for quality as for quantity. The banks of these pools offered very good collecting ground for Amphibia.

On the second day we reached Mopane forest, but every now and then the footpath brought us near the river where the forest is of quite another nature. I was astonished not to find the *Afzelia quanensis* (we had noticed some near the Manzimhlope); a few *Kiggelias* and *Adansonias* gave occasionally a change to the general aspect of the forest of fever trees, wild figs, and marulas. In many places there may have been in the past plantations of *Ricinus communis*, and, if so, the seeds may have spread all along the river; the plant is, however, so common, that one gets the impression that its original home may be here.

On the evening of 5th July we camped about three miles from the junction of the Elephants and Limpopo Rivers, near a large pool called Fukwe. Natives told us that hippos were abundant at the junction. We decided to try and shoot one the next morning as we were very short of meat. We saw several rather far away and only succeeded in wounding a large bull.

The scenery here was very fine, the road climbing higher and higher to about 300 feet above the river, unfolding a most wonderful landscape. It was only here that I saw long strings of *Usnea* hanging from the trees, and noticed that the forest had some similarity to that of the Likuani forest in Maputaland. A few miles beyond the junction there was again a large pool, several miles long, called Pungwe, swarming with pelicans. Thousands of them must have been there; in the distance they gave the absolute impression of a huge flock of sheep.

On the evening of the 7th we reached the grounds of Papai, where game was said to be fairly plentiful, and where elephants might be found also. Camp was made here and two natives were sent out to Mananga to ascertain whether the reports about elephants were true. They returned two days later with fresh dung, and we decided to proceed about 14 miles to the north-east. In the meantime, I had been collecting insects and plants. Insect life was scarce at Papai; a few wasps were caught and robber flies. I noticed also that one kind of ants was very active. Amongst them seemed to be ants of a very different type. When I succeeded in catching some of these, apparently larger individuals, they proved to be two individuals of the same kind. They moved so quickly that it was impossible to distinguish how they were interlaced, and it took some time to disentangle them; they appeared to be on friendly terms. Just next to the open place, where these ants were at work, two specimens of *Vernonia fastigiata* were in flower. They attracted a fair amount of wasps and also a most beautiful Mylabrid, the *Coryna argentata*. Peringuey describes this beetle in the *Transactions of the Royal Society*, Vol. I, part 1, and thinks that it is evidently a straggler. I differ from him, since on these *Vernonias*, which I visited for about five days nearly every three hours, I collected twenty-two of them. They agree in all respects with the description and the plate (where the insect is marked as *Coryna elegans*), but some of my specimens are considerably smaller.

There was no road, so we had to leave the tent and wagon at Papai, and travelled to the indicated spots only with the barest necessities. Low mopane shrub, sometimes with patches of a very thorny Euphorbia made our progress rather slow; it took us more than six hours to cover the distance. We choose a magnificent spot for a camping place near one of those wonderful pools mentioned above. Everywhere we found traces of the activity of elephants, and the banks of the pool were so full of deep holes made by their feet that it was extremely difficult to hunt for insects without falling into them.

Not one shot was fired during the first few days; but when our hunters returned day after day without success we gave up hope of finding elephants in the vicinity and started shooting for the pot. Nothing was to be got except birds, and after a stay of five days, hunger compelled us to go back to Papai. The reason that the elephants were so difficult to find was probably that the excessive rains of the previous summer had filled all the pools and every depression of the soil, and water was so abundant everywhere that the animals were not at all confined to any special locality.

On the 1st of July we returned to the tent and the following morning started for Mazammbo. Our first trek was long and brought us to the chief town of Papai. Butterflies were fairly plentiful. Under the tree where we outspanned we found the remains of a large number of them, mostly *Charaxes brutus*. Several *Melanites leda* were captured and it was only here that I found the rare *Mycalesis* spec. ?

The next place we reached was a kraal called Macafene. Some of the natives residing here were armed with bows and poisoned arrows and the number of skulls and skins showed sufficiently that these bowmen understand their work. From here we proceeded the next morning to Mazammbo. On the road we saw several impalas and a fair number of birds. The floods of the previous year had left some waterholes, and water-birds (*Nycticorax*, *Plotus*, *Halcyon*, black *Ibis*, and a few others) were enlivening the scenery.

It was here that a fair number of *Pergularia* were found. This plant, of which I had only found two specimens near Salamanga on the Maputa and never anywhere else, was fairly plentiful in some places.

We camped at a kraal on the eastern side of the Limpopo, opposite the large kraal of Mazammbo, which is situated at the western side. It was a beautiful spot, which looked very promising. Large trees, belonging to the *Capparidaceae* according to the fruit, gave beautiful shade, old mealie fields were quite near, and game was fairly plentiful. The natives seemed to be very active in trapping, for we saw a fence of thorn trees and bushes more than a mile long, in which openings had been made every 20 yards for the whip-traps.

Unfortunately the weather began to change, clouds appeared, the wind turned to a gale, and shortly after it began to rain. This greatly impeded our work. Having no tent it was hardly possible to dry plants or to cure insects and skins. A native hut was put at our disposal, but it was so dark and windy inside that it was impossible to do any delicate work. In the meantime, two men, whom we had sent out to get information about elephants and elands, returned and reported that about four hours east elands were to be found, as well as sable antelope and koodoo, whilst elephant spoor was plentiful.

We decided to leave Mr. Van Dam at Mazammbo with the wagons so that he could devote all his time to the collecting of small mammals, plants, etc., and the other party proceed to the place indicated by the guides.

On the 18th July we started with a considerable number of carriers to the land of promise, and arrived wet through at the kraal of Magulele, situated about 14 miles to the east. It had again begun to rain, and a spell of such cold weather set in that it was impossible to go out without serious risk of catching a chill. However, it did not prevent the taxidermist, my son, and some of the native hunters from taking the risk, as food was extremely scarce and mealie meal unobtainable. Fortunately, they shot two wildebeeste and an eland, but had to pay for their recklessness with a severe attack of fever. The rain poured down for five days, the cold was intense, and even in the hut of the chief next to the fire we could hardly keep warm.

On the 23rd the clouds began to disperse, but it remained intensely cold and the forest was still too wet to go out shooting.

The next day the native hunters and my son secured four koodoos. Mr. Noome was seriously ill. After the skins had been prepared I considered it necessary to go back to Mazammbo. The spoor of a large elephant bull (2′ 1″ diameter) had been followed up for two days, but we saw the impossibility of transporting the skin through this wilderness and gave up altogether the idea of securing an elephant.

As the taxidermist was suffering from fever the journey back to Mazammbo had to be done in two stages. First of all we camped at one of these beautiful pools, about three miles from Magulele. Here we secured two fine sable antelopes, and a good number of butterflies, mostly *Acrea zetes acara* and *Pardopsis punctatissima*. After a stay of three days we left for Mazammbo and reached it on 29th July.

Amongst the plants collected here the *Crozophora plicata*, a *Euphorbiacaea*, is worth mentioning, as Mazammbo seems to be its most southern locality. It belongs to the tropical flora, and, indeed, Mazammbo is situated almost on the tropic of Capricorn. The identification was done by the Kew authorities; according to its description in the tropical flora, the plant must be prostrate. The specimens which I collected were, however, far from prostrate—they were nice erect shrubs. The only place where I found them was in some old lands, between the village and the river. I had also noticed that some natives made a very good quality of rope from the bark of a tree. On inquiry the tree was shown to me, and fortunately it was bearing flowers whilst still having some fruit left, hence the identification could not go beyond the genus; it was a *Sterculia*, a tree growing about 20 feet high, fairly scarce near Mazammbo, but abundant near Mananga. Our return journey was not characterized by any specially noteworthy points, except at the junction of Limpopo and Elephants Rivers, where we succeeded in killing a large male hippopotamus. This necessitated a day's stay at this place and gave me an opportunity to collect a good many butterflies, amongst which two fine *Eronia thalassina* Bsd. and a few plants, nearly all *Capparidaceae*.

As a general remark, I should like to state that insect life had decreased in July, not only in specimens but also in species. The genus *Teracolus* especially was much less predominant, and nearly all the Lycaenids had disappeared.

On leaving the Manzimhlope, however, on 12th August, we saw a great number of Zygaenids, *Brachartona titaea* Druce, of which eighteen were captured.

The annexed list of the Rhopalocera collected on this expedition was made by Mr. C. J. Swierstra, entomologist and first assistant of the Museum :—

LIST OF LEPIDOPTERA COLLECTED IN GAZALAND.

RHOPALOCERA.

Family SATYRIDAE.

Genus MELANITIS Fabr.

1. *Melanitis leda* (Linn.). 1 ♂, 1 ♀. In very poor condition.

Genus MYCALESIS Hübn.

2. *Mycalesis* ? spec. 6 ♂♂, 4 ♀♀. This *Mycalesis* belongs to the *safitza* group, but differs mainly in the large ocellus of forewing which, on the upper side, is as in *safitza*, but on under side, instead of being black, is reddish-brown, with the white pupil not placed in the centre but at the top of the ocellus, giving it a rather drawn out appearance ; it is also much smaller. Not having sufficient literature at my disposal I am unable to refer it to its specific rank.

Family NYMPHALIDAE.

Sub-Family ACRAEINAE.

Genus ACRAEA Fabr.

3. *Acraea zetes acara* Hewitson. 15 ♂♂, 1 ♀. The ♀ is a brightly coloured specimen with the white submarginal spots in the hind wing very much pronounced. Almost all the ♂♂ show more or less the white suffusion on hind wing.
4. *Acraea anemosa* Hew. 1 ♂. A small example.
5. *Acraea aglaonice* Westw. 1 ♂. This specimen has the transparent spot and the black spots in fore wings larger than the ordinary Transvaal specimens. The black marginal border of hind wing is of medium width and the specimen is exactly like a ♀ from Maputaland, Portuguese South-East Africa.
6. *Acraea terpsichore rougeti* Quin. 7 ♂♂, 6 ♀♀. This series exhibits all the peculiarities in variation of colour common to this species. All the specimens are below the average size.

Genus PARDOPSIS Trimen.

7. *Pardopsis punctatissima* (Bsd.). 7 ♂♂, 7 ♀♀. All 14 specimens are smaller in size than any in the Museum series. They undoubtedly represent the dry phase of the species.

Sub-Family NYMPHALINAE.

Genus PRECIS Hubner.

8. *Precis oenone cebrene* Trimen. 1 ♂, 1 ♀.
9. *Precis orithya madagascariensis* Guenée. 1 ♀.
10. *Precis antilope cuama* Hewits. 1 ♀.

Genus EURYTELA Bsd.

11. *Eurytele dryope* (Cram.). 2 ♂♂. Worn specimens.

Genus BYBLIA Hübner.

12. *Byblia Götzius vulgaris* Staud. 1 ♂, 1 ♀. Worn specimens.

Genus CRENIS Bsd.

13. *Crenis natalensis* Bsd. 2 ♂♂. Very much worn examples.

Genus NEPTIS Fabr.

14. *Neptis Goochi* Hopffer. 1 ♂, 1 ♀. Very much worn examples.

Genus HAMANUMIDA Hübner.

15. *Hamanumida daedalus* (Fabr.). 1 ♂.

Genus CHARAXES Ochs.

16. *Charaxes pelias saturnus* Btl. 1 ♂. A perfect specimen.
17. *Charaxes neanthes* Hew. 1 ♂.

Family LYCAENIDAE.

Genus DEUDORIX Hewits.

18. *Deudorix antalus* Hopff. 2 ♂♂, 3 ♀♀.

Genus HYPOLYCAENA Feld.

19. *Hypolycaena coeculus* (Hopff.). 8 ♂♂, 3 ♀♀.

Genus APHNAEUS Hübn.

20. *Aphnaeus ella* Hewits. 1 ♀. A very much worn specimen.

Genus AXIOCERSES Hübn.

21. *Axiocerses amanga* (Westw.). 1 ♂.
22. *Axiocerses harpax* (Fabr.). 1 ♀.

Genus LYCAENESTHES Moore.

23. *Lycaenesthes amarah* Guerin. 1 ♂.
Lycaenesthes neglecta Trimen. 1 ♂.

Genus CUPIDO Schrank.

24. *Cupido melaena* (Trim.). 1 ♂.
25. *Cupido telicanus* (Lang). 1 ♀.
26. *Cupido malathana* (Bsd.). 4 ♂♂, 2 ♀♀.
27. *Cupido osiris* (Hopff.). 2 ♂♂.
28. *Cupido trochilus* (Freyer). 2 ♀♀.

Family PIERIDAE.

Genus MYLOTHRIS Butler.

29. *Mylothris agathina* (Cram.). 4 ♂♂, 5 ♀♀.

Genus APPIAS Hübn.

30. *Appias epaphia* (Cram.). 1 ♂, 1 ♀.

Genus PIERIS Schrank.

31. *Pieris gidica abyssinica* Lucas. 3 ♂♂.
32. *Pieris severerina* (Cram.). 2 ♂♂, 1 ♀.
33. *Pieris mesentina* (Cram.). 1 ♂, 2 ♀♀.
34. *Pieris pigea alba* Wallgr. 1 ♂, 1 ♀.

Genus TERACOLUS Swainson.

35. *Teracolus amatus* Crowleyi E. Scharpe. 1 ♂.
36. *Teracolus vesta argillaceus* Butler. 4 ♂♂, 4 ♀♀.
37. *Teracolus eris* Klug. 4 ♂♂, 5 ♀♀.
38. *Teracolus ione phlegyas* Butler. 3 ♂♂, 4 ♀♀.
39. *Teracolus regina* Trimen. 1 ♀. A very beautiful specimen of the form as mentioned by Trimen, *S.A.B.*, III, p. 112, and figured on pl. II, f. 3
40. *Teracolus Annae Wallengreni* Butl. 6 ♂♂.
41. *Teracolus omphale theogone* Bsd. 3 ♂♂, 2 ♀♀.
42. *Teracolus evenina deidamioides* Aur. 3 ♂♂, 2 ♀♀.
43. *Teracolus antigone* Bsd. 17 ♂♂, 8 ♀♀.
44. *Teracolus auxo topha* Wellgrn. 14 ♂♂, 9 ♀♀.

Genus ERONIA Boisd.

45. *Eronia leda* Bsd. 2 ♂♂, 1 ♀.
46. *Eronia thalassina* Bsd. 2 ♂♂.
47. *Eronia Buguetti* Bsd. 1 ♂.

Genus CATOPSILIA Hübner.

48. *Catopsilia florella* (Fabr.). 2 ♂♂.

Genus TERIAS Swains.

49. *Terias brigitta* (Cram.). 2 ♂♂, 1 ♀.

Family HESPERIDAE.

Genus PYRGUS Westwood.

50. *Pyrgus borbonica* (Bsd.). 1 ♂.
51. *Pyrgus fatuellus* Hopff. 1 ♂.
52. *Pyrgus mohopaani* (Wllgr.). 1 ♂.

HETEROCERA.

Family AMATIDAE.

Genus TRICHAETA Swinhoe.

53. *Trichaeta fulvescens* (Wlk.). 1 ♂.
54. *Trichaeta pterophorina* Mabille. 1 ♂.

Genus AMATA Fabr.

55. *Amata cerbera* (Linn.). 1 ♂.

Family NOCTUIDAE.

Genus CHALCIOPE Hübner.

56. *Chalciope delta* Bsd. 1 ♂.

Family HYPSIDAE.

Genus DEILEMERA Hübner.

57. *Deilemera leuconoe* Hopff. 1 ♂.

Family GEOMETRIDAE.

Genus CHOGADE.

58. *Chogade acaciaria* Bsd. 1 ♂.
59. 1 specimen. Gen. et spec. ?

Family ZYGAENIDAE.

Genus BRACHARTONA.

60. *Brachartona fitaea* Druce. 18 ♂♂.

Family PYRALIDAE.

61. 1 specimen. Gen. et spec. ? 1 ♂.